(c) Remarks

The claims are 4-6 with claim 4 the sole independent claim. Claim 4 contains the subject matter of former claims 1 and 2 and a portion of claim 3. Claim 5 is similar to former claim 3. Claim 6 is supported, inter alia, on page 20, lines 2-5. Reconsideration of the claims is requested.

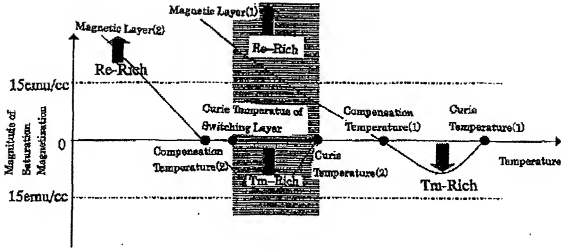
Former Claim 1 was rejected as anticipated by Shiratori '825. Claims 2 and 3 were rejected as obvious over Shiratori '825. The rejections are respectfully traversed.

Prior to addressing the grounds of rejection applicant wishes to briefly review certain key features and advantages of the present claimed invention.

In the present invention, a plurality of magnetic layers constituting a magnetic domain wall displacement layer is provided, whereby saturation magnetization of the magnetic layers can be cancelled with respect to each other. Employing this configuration, the magnitude of a net magnetization of the entire magnetic domain wall displacement layer, in a temperature range from the Curie temperature of the switching layer to the highest Curie temperature of the magnetic layer constituting the magnetic domain wall displacement layer, is 15emu/cc or less. As a result, stable signal reproduction can be performed without being affected by a floating magnetic field or an external magnetic field.

The present claimed invention will be explained in detail with reference to the following reference figure. The following discussion is based on the disclosure at specification page 18, line 16 to page 22, line 9.

Reference Figure



The above Reference Figure shows a temperature change of saturation magnetization of a first magnetic layer and a second magnetic layer where the first magnetic layer (Magnetic Layer (1)) and the second magnetic layer (Magnetic Layer (2)) are superposed to constitute a magnetic domain wall displacement layer. Among the Curie temperatures of the magnetic layers constituting the magnetic domain wall displacement layer, the Curie temperature of Magnetic Layer (1) is the highest and the Curie temperature of Magnetic Layer (2) is the lowest.

Both Magnetic Layer (1) and Magnetic Layer (2) have a compensation composition. At temperatures lower than their compensation temperatures (referred to as Compensation Temperature (1) for Magnetic Layer (1) and Compensation Temperature (2) for Magnetic Layer (2)), a rare earth sublattice magnetization is predominant (referred to as Re-Rich). In the temperature range from the compensation temperature to the Curie temperatures (referred to as Curie Temperature (1) for Magnetic Layer (1) and Curie

Temperature (2) for Magnetic Layer (2)), a transition metal sublattice magnetization is predominant (referred to as Tm-Rich).

The phrase "a magnitude of a net magnetization of the magnetic domain wall displacement layer" or the sum of the magnetization of Magnetic Layer (1) and the magnetization of Magnetic Layer (2), will be explained. In the temperature range from the Curie temperature of the switching layer to the Curie temperature of Magnetic Layer (1) constituting the magnetic domain wall displacement layer as well as lower than Compensation Temperature (1), the saturation magnetization of Magnetic Layer (1) exists where a rare earth sublattice magnetization is predominant (Re-Rich). The degree that the rare earth sublattice magnetization is predominant increases as temperature is reduced. Therefore, in the temperature range from the Curie temperature of the switching layer to Compensation Temperature (1), there are some cases where a magnitude of net magnetization of the entire magnetic domain wall displacement layer exceeds 15emu/cc.

When the Curie temperature of Magnetic Layer (2) is lower than the compensation temperature of Magnetic Layer (1), saturation magnetization of Magnetic Layer (2) in the temperature range from the Curie temperature of the switching layer to the Curie Temperature (2) of Magnetic Layer (2) is the state where a transition metal sublattice magnetization is predominant (Tm-Rich). In the temperature range from the Curie temperature of the switching layer to the Curie Temperature (2) of Magnetic Layer (2), saturation magnetization of each of Magnetic Layer (1) and Magnetic Layer (2) is in an antiparallel state, thereby canceling their saturation magnetization.

Therefore, the magnitude of a net saturation magnetization of the magnetic domain wall displacement layer in the temperature range can be 15emu/cc or less.

Further, a magnitude of a net saturation magnetization of Magnetic Layer (1) in the temperature range from Compensation Temperature (1) to Curie Temperature of Magnetic Layer (1) constituting the magnetic domain wall displacement layer can be low at the beginning and, accordingly, it is relatively easy to achieve 15emu/cc or less. That is, when the Curie temperature of Magnetic Layer (2) is lower than the compensation temperature of Magnetic Layer (1), a magnitude of a net saturation magnetization of the magnetic domain wall displacement layer in the temperature range of the Curie temperature of the switching layer to the Curie temperature of Magnetic Layer (1) can be 15 emu/cc or less. In such a configuration, information recording density on a medium can be highly improved, stable signal reproduction can be performed and these features are not affected by a floating magnetic field or an external magnetic field.

The Examiner argues that Shiratori '825 discloses that a magnitude of a net magnetization of the magnetic domain wall displacement layer and the switching layer in a temperature range from the Curie temperature of the switching layer to the Curie temperature of the magnetic domain wall displacement layer is substantially zero (Figs. 12B and 12C, column 17, line 42 to column 18, line 3).

As pointed out by the Examiner, when a temperature of a medium is in the range from the Curie temperature of the switching layer to the Curie temperature of the magnetic domain wall displacement layer, a magnitude of a saturation magnetization of the switching layer is <u>substantially</u> zero. However, in that temperature range, a magnitude of a saturation magnetization is <u>not</u> zero, but is a certain value.

An object of the present invention is to reduce the magnitude of saturation magnetization of the magnetic domain wall displacement layer in the temperature range

from the Curie temperature of the switching layer to the Curie temperature of the magnetic domain wall displacement layer to 15emu/cc or less. In order to achieve that object, the magnetic domain wall displacement layer is constituted by a plurality of the magnetic layers and their magnetization is cancelled with respect to each other. Accordingly, the magnitude of the saturation magnetization of the entire magnetic domain wall displacement layer can be reduced.

In contrast, in Shiratori '825, the magnetic domain wall displacement layer is a <u>single</u> layer. Therefore, its configuration is completely different from the present invention as <u>noted</u> above, and the effects obtained by the present invention cannot be obtained.

Accordingly, Shiratori et al. does not either disclose or suggest the present claimed invention nor render it unpatentable.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

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